SPYWOLF

Security Audit Report

Completed on

January 15, 2023

OVERVIEW

This audit has been prepared for **Howl Finance** to review the main aspects of the project to help investors make make an informative decision during their research process.

You will find a a summarized review of the following key points:

- ✔ Contract's source code
- ✔ Owners' wallets
- ✔ Tokenomics
- ✔ Team transparency and goals
- ✔ Website's age, code, security and UX
- ✔ Whitepaper and roadmap
- ✔ Social media & online presence

The results of this audit are purely based on the team's evaluation and does not guarantee nor reflect the projects outcome and goal

- SPYWOLF Team -

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HOWL FINANCE

PROJECT DESCRIPTION

According to their whitepaper:

$WOLF brings utility in many forms. Including sustainability, passive income, trust, honesty, NFTs, SaaS and financial freedom! With an ecosystem which provides a great way to gain during any market conditions, we are here through thick and thin.

Utilities list:

- Wolf Swap
- Wolfolio
- SaaS (Software as a Service)
- The Wolf Pack
- The Hunting Grounds

Release Date: Presale starts in January, 2023

Category: Utility token

CONTRACT INFO

Token Name	Symbol
Howl Finance	HOWL

Contract Address
0xa5047aF71E08032Ff078EADa4c48b144a4977910

Network	Language
Binance Smart Chain	Solidity

Deployment Date	Verified?
Jan 13, 2023	Yes

Total Supply	Status
1,000,000,000	Not launched

TAXES

Buy Tax
none

Sell Tax
none

*Taxes can be changed in future

Our Contract Review Process

The contract review process pays special attention to the following:

- Testing the smart contracts against both common and uncommon vulnerabilities
- Assessing the codebase to ensure compliance with current best practices and industry standards.
- Ensuring contract logic meets the specifications and intentions of the client.
- Cross referencing contract structure and implementation against similar smart contracts produced by industry leaders.
- Thorough line-by-line manual review of the entire codebase by industry experts.

Blockchain security tools used:

- OpenZeppelin
- Mythril
- Solidity Compiler
- Hardhat

CURRENT STATS

(As of January 15, 2023)

Liquidity

Not added yet

Burn

No burnt tokens

Status:

Not Launched!

MaxTxAmount

10,000,000

DEX:

PancakeSwap

LP Address(es)

Liquidity not added yet

TOKEN TRANSFERS STATS

Transfer Count	1
Uniq Senders	1
Uniq Receivers	1
Total Amount	1000000000 HOWL
Median Transfer Amount	1000000000 HOWL
Average Transfer Amount	1000000000 HOWL
First transfer date	2023-01-12
Last transfer date	2023-01-12
Days token transferred	1

SMART CONTRACT STATS

Calls Count	2
External calls	2
Internal calls	0
Transactions count	2
Uniq Callers	1
Days contract called	1
Last transaction time	2023-01-12 16:50:23 UTC
Created	2023-01-12 16:47:17 UTC
Create TX	0x52e9e800d952f79d0fe8524bbb0baffd695aa63ae57535a2fa14bea5eb22d0b7
Creator	0xeeeedba6bfbd03efe1de85988f9db3a1edeafa52

FEATURED WALLETS

Owner address	0xeeeedba6bfbd03efe1de85988f9db3a1edeafa52
Buyback fee receiver	0xeeeedba6bfbd03efe1de85988f9db3a1edeafa52
LP address	**Liquidity not added yet**

PRESALE STATS (Pinksale)

Total Supply	1,000,000,000 HOWL
Tokens For Presale	N/A
Tokens For Liquidity	N/A
Soft Cap	N/A
Presale Start Time	N/A
Presale End Time	N/A
Listing On	Pancakeswap
Liquidity Percent	N/A
Liquidity Lockup Time	N/A

VULNERABILITY CHECK

Design Logic	Passed
Compiler warnings.	Passed
Private user data leaks	Passed
Timestamp dependence	Passed
Integer overflow and underflow	Passed
Race conditions and reentrancy. Cross-function race conditions	Passed
Possible delays in data delivery	Passed
Oracle calls	Passed
Front running	Passed
DoS with Revert	Passed
DoS with block gas limit	Passed
Methods execution permissions	Passed
Economy model	Passed
Impact of the exchange rate on the logic	Passed
Malicious Event log	Passed
Scoping and declarations	Passed
Uninitialized storage pointers	Passed
Arithmetic accuracy	Passed
Cross-function race conditions	Passed
Safe Zeppelin module	Passed
Fallback function security	Passed

THREAT LEVELS

When performing smart contract audits, our specialists look for known vulnerabilities as well as logical and access control issues within the code. The exploitation of these issues by malicious actors may cause serious financial damage to projects that failed to get an audit in time. We categorize these vulnerabilities by the following levels:

High Risk

Issues on this level are critical to the smart contract's performance/functionality and should be fixed before moving to a live environment.

Medium Risk

Issues on this level are critical to the smart contract's performance/functionality and should be fixed before moving to a live environment.

Low Risk

Issues on this level are minor details and warning that can remain unfixed.

Informational

Information level is to offer suggestions for improvement of efficacy or security for features with a risk free factor.

FOUND THREATS

⚠ High Risk

Owner can initiate LPBurn function which burns native tokens directly from the liquidity pair.
The function can be triggered 5 minutes after the token's launch and called indefinitely until the vast majority of paired tokens is burned.
This can be abused and cause drain of the entire liquidity pool.

```
uint256 public lastSync;
constructor () Auth(msg.sender) {
    ............
    lastSync = block.timestamp;
    ............
}

function LPBurn(uint256 percent_base10000) public authorized returns (bool){
    require(percent_base10000 <= 1000, "May not nuke more than 10% of tokens in LP");
    require(block.timestamp > lastSync + 5 minutes, "Too soon");
    require(burnEnabled,"Burns are disabled");

    uint256 lp_tokens = this.balanceOf(pair);
    uint256 lp_burn = lp_tokens.mul(percent_base10000).div(10_000);

    if (lp_burn > 0){
        _basicTransfer(pair,DEAD,lp_burn);
        pairContract.sync();
        return true;
    }

    return false;
}
```

- Recommendation:
  - Ensure to burn the actual LP tokens contained in the contract, instead of native token from the liquidity pair.

FOUND THREATS

⚠ High Risk

Owner can change auto swap threshold.
If swapThrehold is set to 0, selling will fail.

```
function setSwapBackSettings(bool _enabled, uint256 _amount) external onlyOwner {
    require(_amount < (_totalSupply/10), "Amount too high");

    swapEnabled = _enabled;
    swapThreshold = _amount;

    emit config_SwapSettings(swapThreshold, swapEnabled);
}
```

- Recommendation:
  - Ensure that swapThreshold variable is always above 0 (zero).

FOUND THREATS

⚠ Low Risk

Owner can change buy/sell fees up to 20% and transfer fees up to 15%.
Combined buy+sell=40%.

```
function setFees_base1000(uint256 _liquidityFee,  uint256 _marketingFee,
 uint256 _buybackFee, uint256 _burnFee) external onlyOwner {
    liquidityFee = _liquidityFee;
    marketingFee = _marketingFee;
    buybackFee = _buybackFee;
    burnFee = _burnFee;
    totalFee = _liquidityFee + _marketingFee + _buybackFee + _burnFee;

    update_fees();
}

 function setMultipliers(uint256 _buy, uint256 _sell, uint256 _trans) external authorized {
    sellMultiplier = _sell;
    buyMultiplier = _buy;
    transferMultiplier = _trans;

    update_fees();
}

function update_fees() internal {
    require(totalFee.mul(buyMultiplier).div(100) <= 200, "Buy tax cannot be more than 20%");
    require(totalFee.mul(sellMultiplier).div(100) <= 200, "Sell tax cannot be more than 20%");
    require(totalFee.mul(sellMultiplier + buyMultiplier).div(100) <= 400, "Buy+Sell tax cannot be more than 40%");
    require(totalFee.mul(transferMultiplier).div(100) <= 150, "Transfer Tax cannot be more than 15%");

    emit UpdateFee( uint8(totalFee.mul(buyMultiplier).div(100)),
        uint8(totalFee.mul(sellMultiplier).div(100)),
        uint8(totalFee.mul(transferMultiplier).div(100))
        );
}
```

- Recommendation:
  - Considered as good tax deduction practice is buy and sell fees combined not to exceed 25%.

Informational

Owner can exclude address from fees, max transaction limit and max wallet limit.

```
function manage_FeeExempt(address[] calldata addresses, bool status) external authorized {
    require(addresses.length < 501,"GAS Error: max limit is 500 addresses");
    for (uint256 i=0; i < addresses.length; ++i) {
        isFeeExempt[addresses[i]] = status;
        emit Wallet_feeExempt(addresses[i], status);
    }
}

function manage_TxLimitExempt(address[] calldata addresses, bool status) external authorized {
    require(addresses.length < 501,"GAS Error: max limit is 500 addresses");
    for (uint256 i=0; i < addresses.length; ++i) {
        isTxLimitExempt[addresses[i]] = status;
        emit Wallet_txExempt(addresses[i], status);
    }
}

function manage_WalletLimitExempt(address[] calldata addresses, bool status) external authorized {
    require(addresses.length < 501,"GAS Error: max limit is 500 addresses");
    for (uint256 i=0; i < addresses.length; ++i) {
        isWalletLimitExempt[addresses[i]] = status;
        emit Wallet_holdingExempt(addresses[i], status);
    }
}
```

Owner can change max transaction limit but cannot lower it than 0.1% of total supply.

```
function setMaxTxPercent_base10000(uint256 maxTXPercentage_base10000) external onlyOwner {
    require(maxTXPercentage_base10000 >= 10,"Cannot set max transaction less than 0.1%");
    _maxTxAmount = (_totalSupply * maxTXPercentage_base10000 ) / 10000;
    emit config_MaxTransaction(_maxTxAmount);
}
```

Informational

Owner can withdraw any tokens from the contract except the native token and bnb token.

```
function clearStuckToken(address tokenAddress, uint256 tokens) external authorized returns (bool success) {
    require(tokenAddress != address(this),"Cannot withdraw native token");
    if(tokenAddress == pair){
        require(block.timestamp > launchedAt + 500 days,"Locked for 1 year");
    }

    if(tokens == 0){
        tokens = BEP20(tokenAddress).balanceOf(address(this));
    }

    emit clearToken(tokenAddress, tokens);

    return BEP20(tokenAddress).transfer(msg.sender, tokens);
}
```

RECOMMENDATIONS FOR

GOOD PRACTICES

1. Consider fundamental tradeoffs
2. Be attentive to blockchain properties
3. Ensure careful rollouts
4. Keep contracts simple
5. Stay up to date and track development

HOWL FINANCE

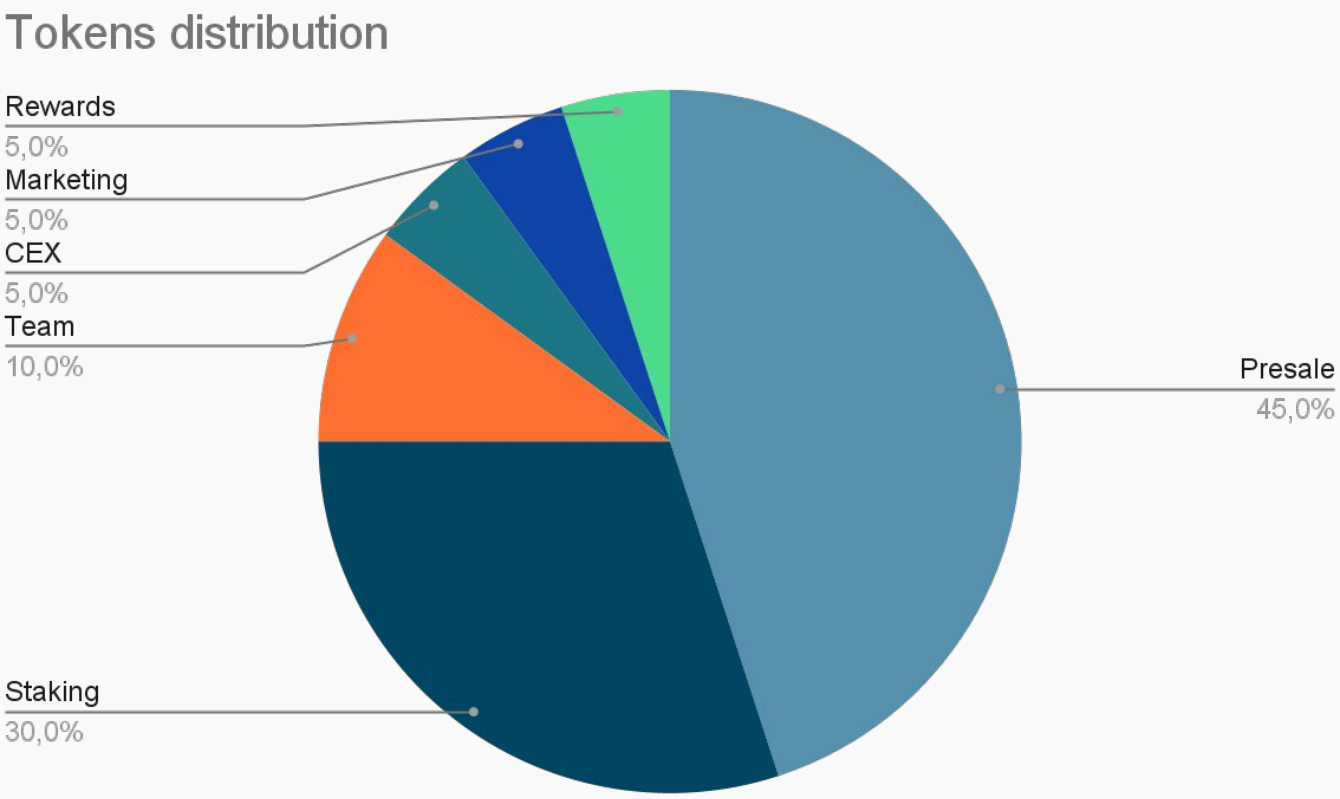
GOOD PRACTICES FOUND

- ✔ The owner cannot mint new tokens after deployment
- ✔ The owner can set a transaction limit, but can’t lower it than 0.1% of total supply
- ✔ The smart contract utilizes "SafeMath" to prevent overflows

TOKENOMICS

The following tokenomics are based on the project's whitepaper and/or website:

- 45% - Presale
- 30% - Staking
- 10% - Team (vested)
- 5% - CEX
- 5% - Marketing
- 5% - Rewards



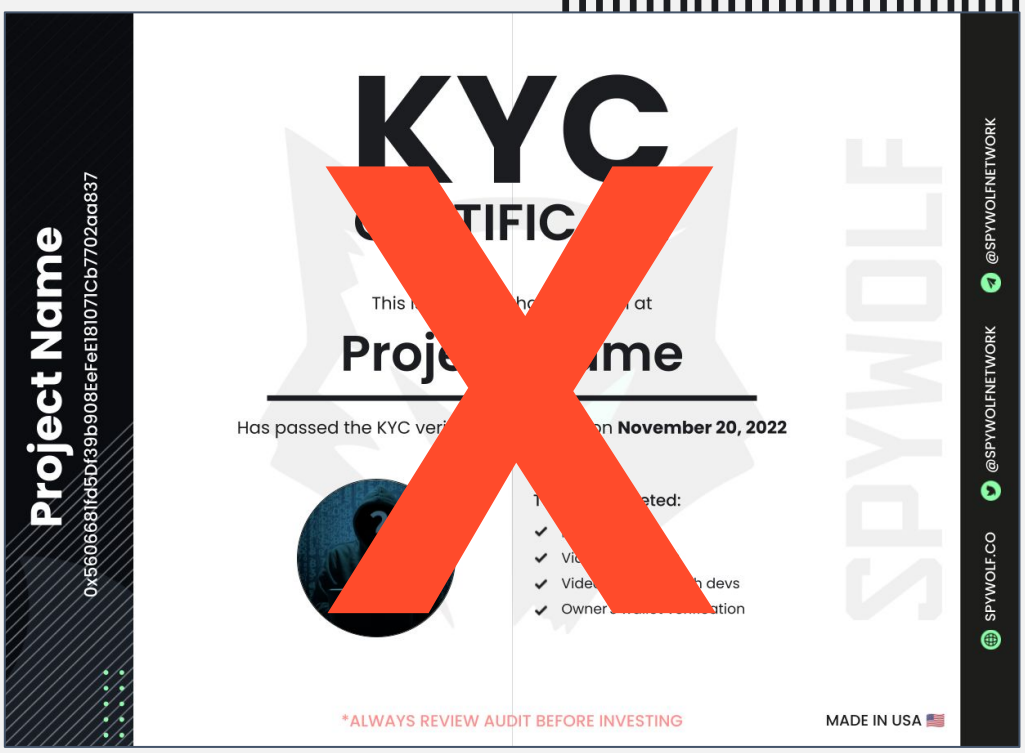
THE TEAM

⚠️ The team is annonymous

KYC INFORMATION

⚠️ No KYC

We recommend the team to get a KYC in order to ensure trust and transparency within the community.



WEBSITE

Website URL
https://www.howlfinance.com/

Domain Registry
https://www.wix.com

Domain Expiration
2023-12-22

Technical SEO Test
Passed

Security Test
Passed. SSL certificate present

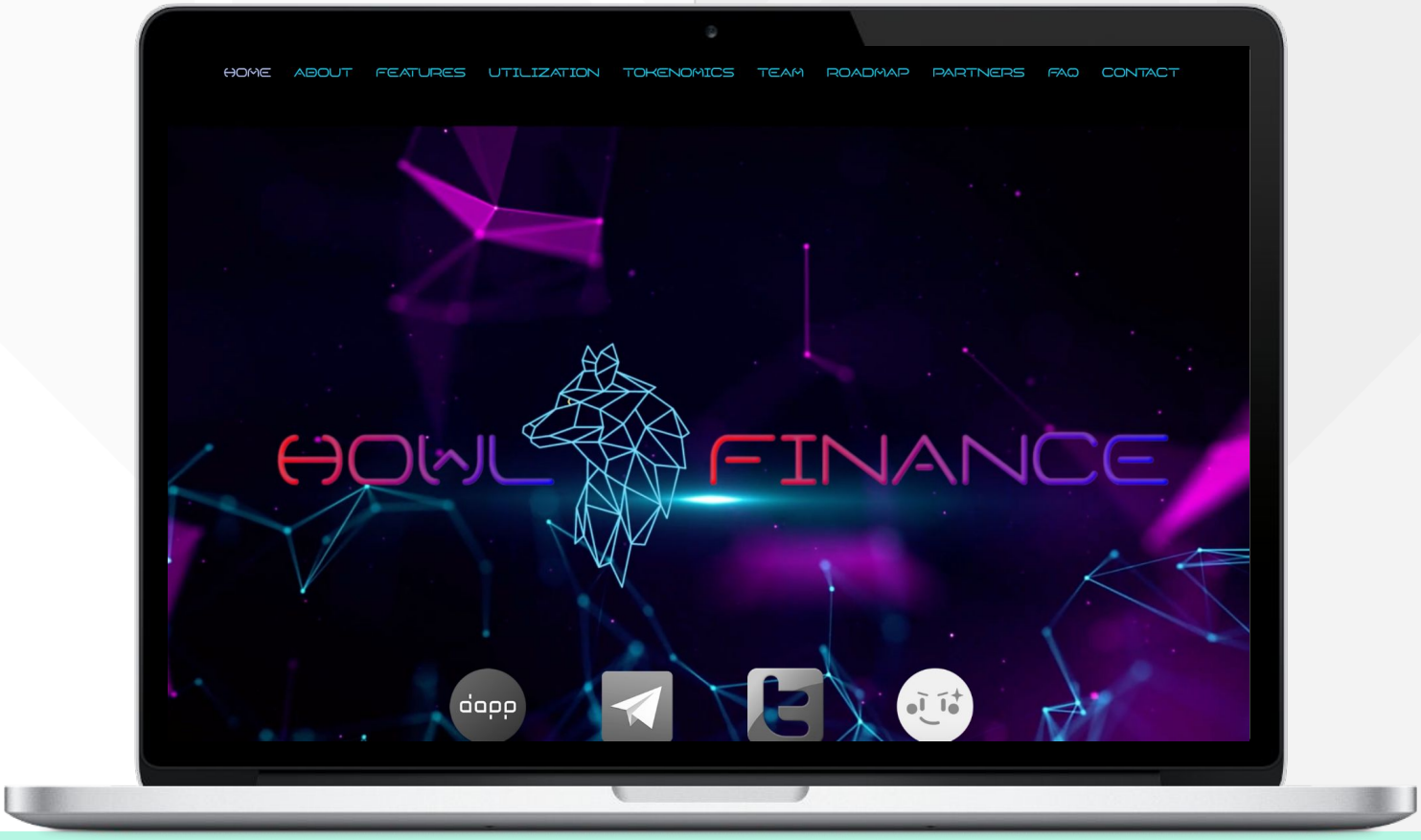
Design
Single page design with nice color scheme and overall layout.

Content
The information helps new investors understand what the product does right away. No grammar mistakes found..

Whitepaper
No whitepaper.

Roadmap
Yes, goals set without time frames.

Mobile-friendly?
Yes



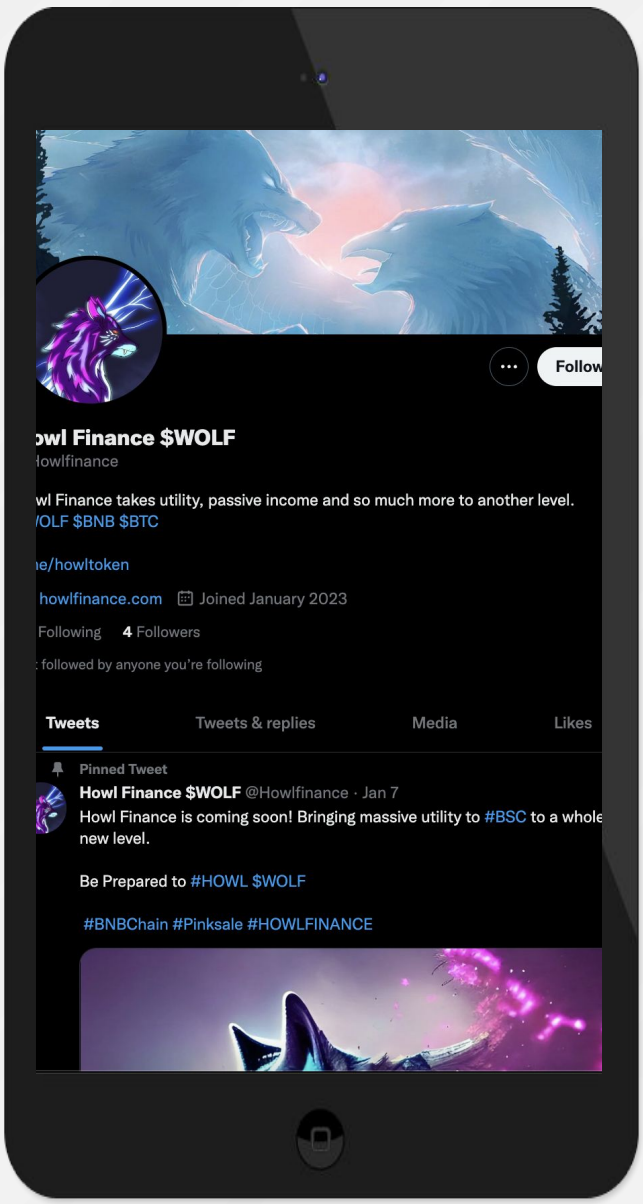
howlfinance.com

SOCIAL MEDIA

& ONLINE PRESENCE

ANALYSIS

Project's social media pages are not active.



Twitter

@Howlfinance

- 4 followers
- 1 post total

Discord

- Not available

Telegram

@HowlToken

- 11 members
- No active members

Medium

- Not available

SPYWOLF

CRYPTO SECURITY

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Disclaimer

This report shows findings based on our limited project analysis, following good industry practice from the date of this report, in relation to cybersecurity vulnerabilities and issues in the framework and algorithms based on smart contracts, overall social media and website presence and team transparency details of which are set out in this report. In order to get a full view of our analysis, it is crucial for you to read the full report.
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No applications were reviewed for security. No product code has been reviewed.